

Detailed Action

Claims 1, 3-6 and 8-12 remain pending in the application. Claims 15-41 have been cancelled by Applicants' amendment filed on 09-28-2010. Claims 4, 5, 9 and 10 were previously withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, and claims 29-41 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Applicant's representative was contacted on October 12, 2010 to amend independent claims 1 and 6 as the recitation of " an active portion of any one of 20S-hydroxycholesterol, 22S-hydroxycholesterol, 22R-hydroxycholesterol, or 25-hydroxycholesterol" will raise potential issues of rejection under 35 USC § 112- as the specification as filed does not provide sufficient disclosure for "an active portion", e.g. -OH group, for the skilled artisan to make or use the claimed invention without undue and/or unreasonable experimentation invention without undue experimentation.

Authorization for the examiner's amendment was given in a telephone interview with Nancy Axelrod, on October 18, 2010.

Claims 1, 3, 6, 8, 11 and 12 are allowable. Accordingly, claims 4 and 5, which depend on generic claim 1 as originally filed, and claims 9 and 10, which depend on generic claim 6 as originally filed, have been rejoined. Accordingly, claims 24-36 have been rejoined examined and meet all criteria for patentability including the requirements of 35 U.S.C. 101, 102, 103, and 112.

With respect to the proposed claims, an examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be

filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it must be submitted no later than the payment of the issue fee.

EXAMINER'S AMENDMENT

In the claims

Correct claims 1 and 6 as follows:

Page 2, lines 6-7 of claim 1, the phrase “or an active portion of any one of 20S-hydroxycholesterol, 22S- hydroxycholesterol, 22R-hydroxycholesterol, or 25-hydroxycholesterol” has been deleted.

Page 3, lines 6-7 of claim 6, the phrase “or an active portion of any one of 20S-hydroxycholesterol, 22S- hydroxycholesterol, 22R-hydroxycholesterol, or 25-hydroxycholesterol” has been deleted.

Reasons for allowance

The following is an examiner's statement of reasons for allowance: The prior art of record does not teach or suggest of compositions and methods comprising:

A method of inducing osteoblastic differentiation and inhibiting adipocyte differentiation of mammalian mesenchymal stem cells (MSCs) comprising treating mammalian MSCs with at least one oxysterol,

wherein the at least one oxysterol is selected from the group consisting of 20S-hydroxycholesterol, 22S-hydroxycholesterol, 22R-hydroxycholesterol and 25-hydroxycholesterol, and

wherein the MSCs are treated with the at least one oxysterol under conditions that are

effective to induce osteoblastic differentiation and to inhibit adipocyte differentiation of the MSC.

Withdrawn /Rejections

Claim Rejections - 35 USC § 103

In view of Applicants' cancellation of claims 15-41, rejection of Claims 15-17, 19-21, 23-26 and 28 under 35 U.S.C. 103(a) as being unpatentable over Paralkar et al., US Publication no. 20040176423 (Date of Publication September 9, 2004), in view of Parish et al., (1995, Lipids, pp. 247-251) and further in view of Wang et al. (Clinical Orthopaedics and Related Research, 2000, 370: 295-310) is rendered moot.

Claim Rejections - 35 USC § 112- Second Paragraph

In view of Applicants' cancellation of claims 15-17 and 19-21, 23-26 and 28 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention is rendered moot.

Claim Rejections - 35 USC § 112- First paragraph- New Matter

In view of Applicants' cancellation of claims 15-17 and 19-21, 23-26 and 28 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement is rendered moot.

Provisional Rejection, Obviousness Type Double Patenting-

Claims 1, 3, 6, 8, 11, 12, 15 are no longer rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3, 5-9, 11-15, 17-20, 22-

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25 and 27-30 of copending Application No. 10,569,994 (priority filing date 08-29-2002 vs. 08-23-2003), in view of Paralkar et al., 20040176423 (Date of Publication September 9, 2004). If a provisional double patenting rejection (of any type) is the only rejection remaining in two conflicting applications, the examiner should withdraw that rejection in one of the applications (e.g., the application with the earlier filing date) and permit the application to issue as a patent (MPEP 1504.06 [R-5] under the heading Double Patent

Claims 1, 3, 6, 8, 11, 12, 15 are no longer rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-11 of copending Application No. 11/918,089 (priority filing date 09-02-2005) and over claims 1-9 and 15 of the copending Application No. 11/991,322 (priority filing date 09-02-2005). If a provisional double patenting rejection (of any type) is the only rejection remaining in two conflicting applications, the examiner should withdraw that rejection in one of the applications (e.g., the application with the earlier filing date) and permit the application to issue as a patent (MPEP 1504.06 [R-5] under the heading Double Patent.

Of note, Mundy (Science, 1999; page 1946, column 1) demonstrates a casual relationship between the ability to inhibit HMG-CoA reductase activity and their alleged ability to induce osteoblastic differentiation, particularly because Rao et al., (1999; *Pro. Natl. Aca. Sci.*) discloses an alternative pathway as a target of lovastatin action outside the mevalonate/cholesterol pathway, i.e. a lovastatin independent mevalonate/cholesterol pathway essential for cell division. Thus, Mundy teaches that the activity of lovastatin to inhibit HMG-

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CoA reductase activity to stimulate bone formation by inducing the BMP-2 promoter is causal; the causal relationship means that other agents that inhibit HMG-CoA reductase, such as oxysterols, do not necessarily induce osteoblastic. It would have been unpredictable at the time of filing the present application whether two different inhibitors of HMG-CoA reductase, i.e., 20S-hydroxycholesterol, 22S-hydroxycholesterol, 22R-hydroxycholesterol and 25-hydroxycholesterol would have the same effect, e.g., osteoblastic differentiation. When no direction as to which of many possible choices is likely to be successful, an invention would not have been obvious to try. Bayer Schering Pharma AG v. Barr Labs. Inc., 91 USPQ2d 1569, 1573 (Fed. Cir. 2009).

Conclusion

Claims 1, 3-6 and 8-12 are allowable.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maria Leavitt whose telephone number is 571-272-1085. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Woitach, Ph.D can be reached on (571) 272-0739. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to Group Art Unit 1633; Central Fax No. (571) 273-8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Maria Leavitt/

Maria Leavitt
Primary Examiner, Art Unit 1633